European Commission

Period covered: 1 October–17 November
Issued: 23 November 2015

Crop monitoring in Europe

MARS Bulletin Vol. 23 No 11 (2015)

Improved weather conditions for winter crops

Temperatures from the end of October until mid-November were well above average across most of Europe, and the highest in our records (since 1975) for the **United Kingdom, France, Germany, Scandinavia** and **the Baltic countries**. Such temperatures are beneficial to the development of the emerged winter crops.

Conditions improved in **Poland, Ukraine** and **Russia**, where beneficial rains and higher temperatures provided relief from the difficulties reported in the previous bulletin. The preceding unfavourable germination conditions may yet have a knock-on effect on next year's yields, depending on the winter and spring conditions to come.

A large belt in **central** and **eastern Europe** is experiencing a period of rain scarcity, which has been beneficial for the sowing and emergence of winter crops. Most of these regions faced excessive rainfall during the first half of October.

In **southern Italy**, torrential rain occurred at the end of October, prior to the sowing of winter crops. High positive rainfall anomalies have been recorded in the north-western **United Kingdom**, but not in crop-growing regions.

AREAS OF CONCERN - EXTREME WEATHER EVENTS

Based on observed and forecasted data from 23 October 2015 until 30 November 2015

Rain surplus
Rain deficit
Temperature accumulation surplus

Crop	Yield t/ha				
	2014	MARS 2015 forecasts	Avg 5yrs	% 15/14	% 15/5yrs
TOTAL CEREALS	5.72	**5.17**	5.21	-9.5	-0.7
Total Wheat	5.90	**5.60**	5.44	-5.0	+3.1
soft wheat	6.14	**5.84**	5.67	-4.9	+3.1
durum wheat	3.35	**3.20**	3.26	-4.5	-1.8
Total Barley	4.90	**4.64**	4.49	-5.3	+3.3
spring barley	4.16	**3.91**	3.91	-5.8	+0.1
winter barley	5.92	**5.60**	5.36	-5.4	+4.5
Grain maize	8.16	**6.46**	7.04	-20.9	-8.2
Rye	4.23	**3.72**	3.58	-12.1	+3.8
Triticale	4.53	**4.10**	4.15	-9.5	-1.4
Other cereals	3.14	**2.88**	3.63	-8.3	-20.7
Rape and turnip rape	3.59	**3.25**	3.13	-9.5	+4.0
Potato	34.71	**31.57**	31.39	-9.0	+0.6
Sugar beet	76.97	**70.59**	70.44	-8.3	+0.2
Sunflower	2.13	**1.78**	1.90	-16.5	-6.5

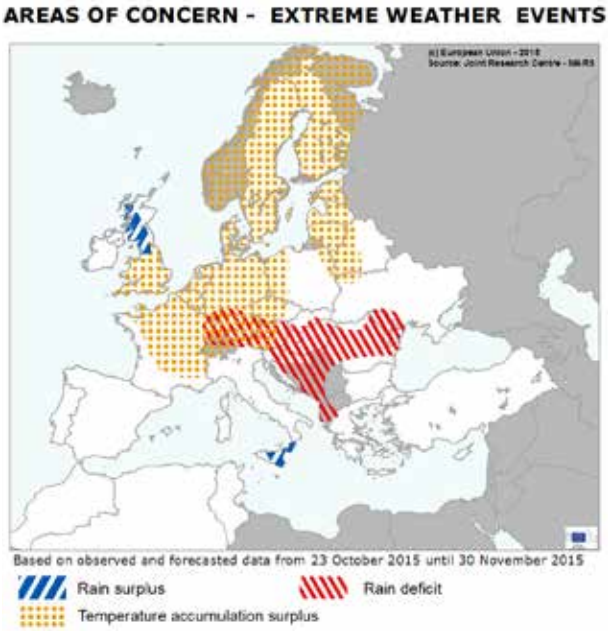
Issued: 20 Novembre 2015

Joint Research Centre

1. Agro-meteorological overview

1.1 Areas of concern

Improved weather conditions for emerging winter crops



The map above refers to the period from 23 October to 30 November; weather forecast covers the period from 20 to 30 November.

Temperatures from the end of October until mid-November were well above average across most of Europe, especially in the **United Kingdom, France, Germany, Scandinavia** and **the Baltic** countries, which were the warmest days on our records (1975-2014) during this period. Such temperatures are beneficial to the development of the emerged winter crops. The extreme weather map shows that a large belt in **central** and **eastern Europe** is experiencing a period of rain scarcity. Most parts of this region faced excessive rainfall during the first half of October, and the subsequent dry period has been beneficial for the sowing and emergence of winter crops. In **southern Italy**, torrential rain occurred at the end of October, prior to the sowing of winter crops. High positive rainfall anomalies are recorded in north-western **United Kingdom**, but not in crop-growing regions.

Conditions also improved in **Poland**, **Ukraine** and **Russia**, where beneficial rain and higher temperatures provided relief from the difficulties reported in the previous bulletin. However, the preceding unfavourable germination conditions may yet have a knock-on effect on next year's yields, depending on winter and spring conditions to come.

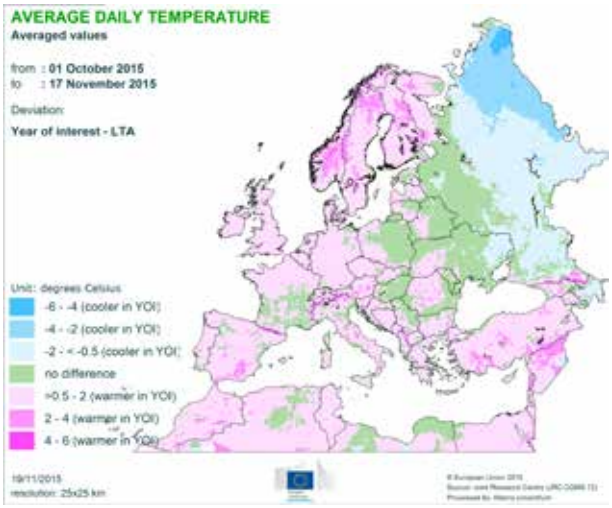
1.2 Meteorological review (1 October-17 November)

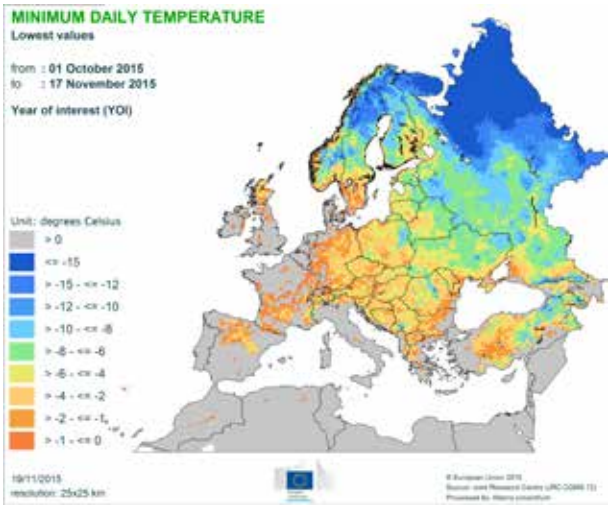
October was characterised by colder-than-seasonal weather in large parts of Europe, especially in central and eastern Europe during the first half of the month. By contrast, the first half of November was unusually warm for this time of the year. Rainfall conditions were highly variable. Abundant rainfall was recorded in the north-western part of the Iberian Peninsula, south-western France, Italy and the western Balkans in October, and in the North Sea region in November. Dry conditions prevailed in a belt extending from southern Scandinavia to eastern Ukraine in October, and in Italy, south-eastern Europe and Turkey during the first half of November.

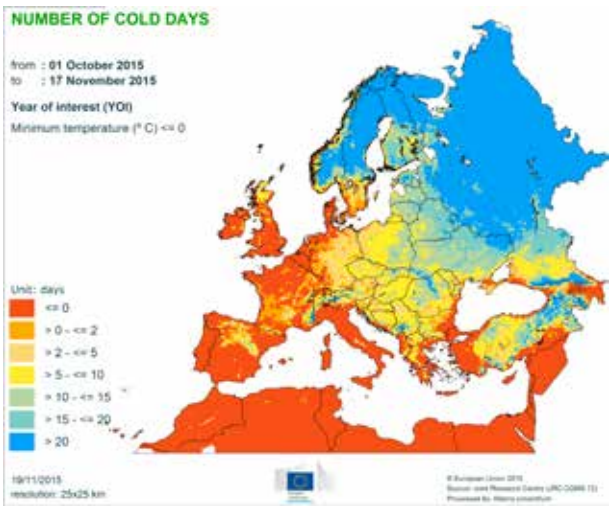
Observed temperatures

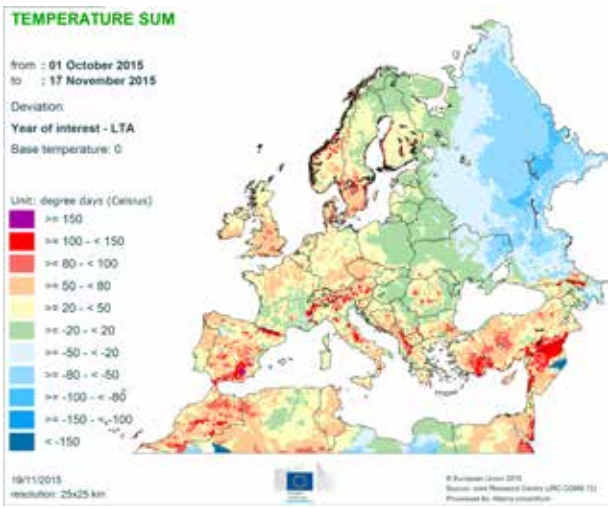
During the first half of October, colder-than-usual conditions prevailed in France and in central and eastern Europe, with temperature anomalies up to 4 °C below the long-term average. Warmer-than-seasonal weather was observed in southern Spain, southern Italy, the southern Balkans and Turkey. Minimum temperatures dropped below 0 °C in major parts of central, eastern and northern Europe. Eastern Poland and the northern half of the Ukraine locally experienced minimum temperatures of less than – 8 °C. The second half of October was warmer than usual in northern Europe, the British Isles, Spain, parts of central Europe and Turkey. The most pronounced warm anomalies (2-4 °C above the long-term average) were recorded in northern Europe and Turkey.

Colder-than-usual weather continued in eastern Europe and south-eastern France. Minimum daily air temperatures below 0 °C occurred mainly in eastern and northern Europe. The first half of November was characterised by unusually warm weather for this time of year. Average daily air temperatures were above the long-term average by 4-6 °C in many areas of central and western Europe, and by up to 4 °C in eastern, northern and southern Europe. Despite these substantial positive anomalies, minimum daily air temperatures below 0 °C were recorded in northern and eastern Europe and central Turkey; temperatures also frequently dropped below 0 °C in Slovakia, Hungary, western and central parts of Romania, western Bulgaria, Serbia and Macedonia.


AVERAGE DAILY TEMPERATURE
Averaged values
from : 01 October 2015
to : 17 November 2015
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
-2 - < -0.5 (cooler in YOI)
no difference
>0.5 - 2 (warmer in YOI)
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
19/11/2015
resolution: 25x25 km

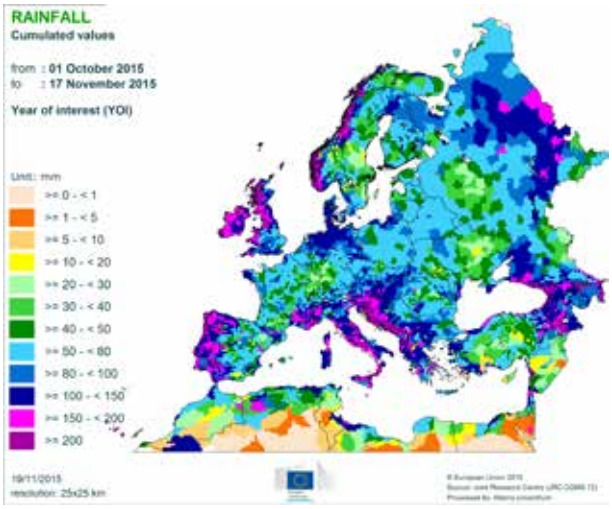

MINIMUM DAILY TEMPERATURE
Lowest values
from : 01 October 2015
to : 17 November 2015
Year of interest (YOI)
Unit: degrees Celsius
> 0
<= -15
> -15 - <= -12
> -12 - <= -10
> -10 - <= -8
> -8 - <= -6
> -6 - <= -4
> -4 - <= -2
> -2 - <= -1
> -1 - <= 0
19/11/2015
resolution: 25x25 km

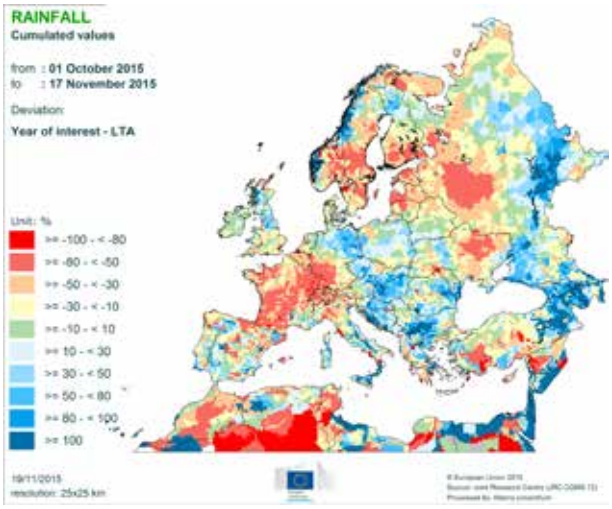

NUMBER OF COLD DAYS
from : 01 October 2015
to : 17 November 2015
Year of interest (YOI)
Minimum temperature (° C) <= 0
Unit: days
<= 0
> 0 - <= 2
> 2 - <= 5
> 5 - <= 10
> 10 - <= 15
> 15 - <= 20
> 20
19/11/2015
resolution: 25x25 km

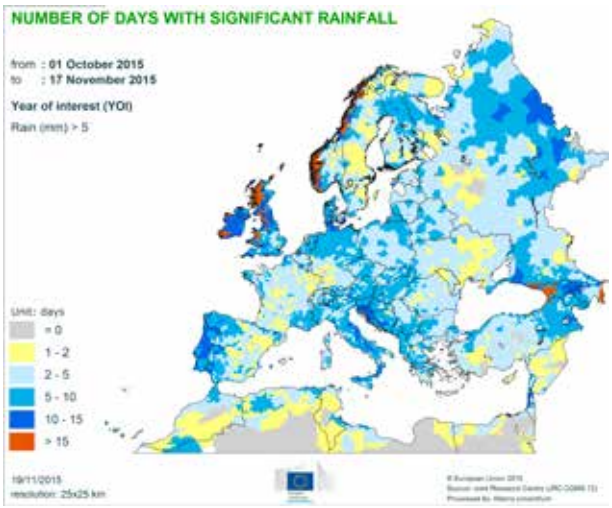

TEMPERATURE SUM
from : 01 October 2015
to : 17 November 2015
Deviation
Year of interest - LTA
Base temperature: 0
Unit: degree days (Celsius)
>= 150
>= 100 - < 150
>= 80 - < 100
>= 50 - < 80
>= 20 - < 50
>= -20 - < 20
>= -50 - < -20
>= -80 - < -50
>= -100 - < -80
>= -150 - < -100
< -150
19/11/2015
resolution: 25x25 km

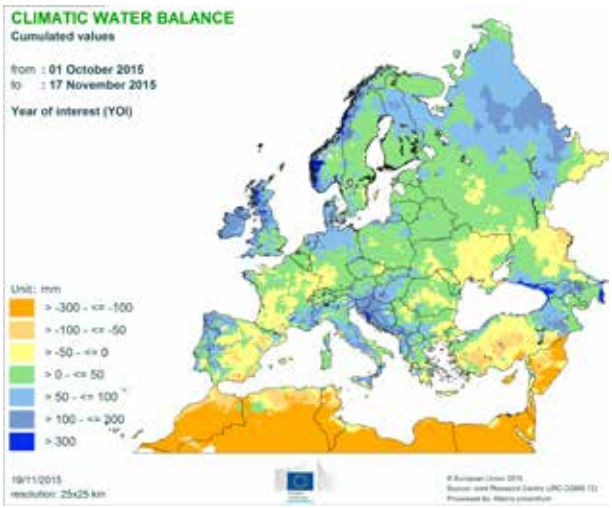
Observed precipitation

During the first dekad of October, abundant rainfall was recorded in the western Balkan region, south-eastern France, the Apennine region and the north-western part of the Iberian Peninsula, with rainfall cumulates generally exceeding 80 mm. Very heavy rainfall episodes (over 100 mm per day) were recorded locally in south-eastern France. Heavy rainfall episodes continued during the second dekad of October in the eastern Adriatic coastal region and in south-eastern Alpine areas. By contrast, dry conditions prevailed during the first two dekads of October in a wide belt extending from southern Scandinavia to the northern Black Sea region. The third dekad of October was dry, with precipitation cumulates less than 5 mm in central Europe and the northern Balkans. Precipitation cumulates above 30 mm occurred in Portugal, central and southern Italy, the southern Balkans, western Turkey and the central part of European Russia. During the first half of November, dry weather prevailed in the Alpine region, Italy, south-eastern Europe and the western half of Turkey. Below-average rainfall cumulates were also recorded in France, southern Germany, Austria, Slovakia and Hungary. Wetter-than-usual conditions occurred in the Baltic countries, Belarus, northern Poland and the southern part of European Russia, while the most abundant rainfall occurred in regions surrounding the North Sea.









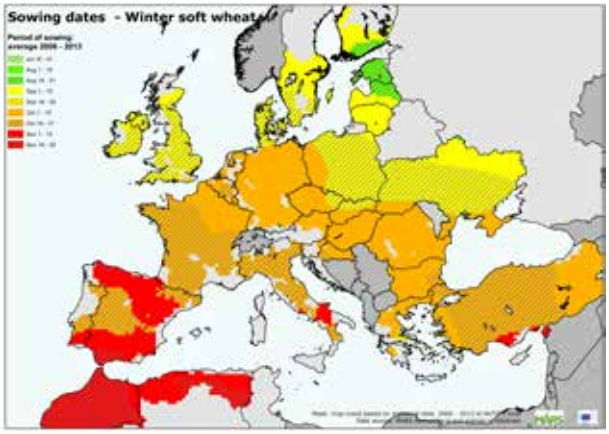
2. New campaign 2015/2016

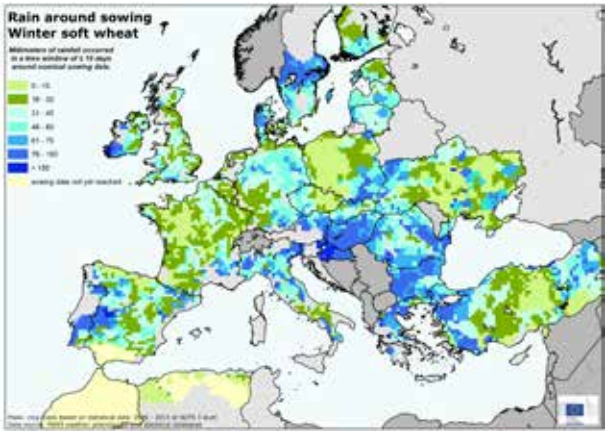
2.1 EU-28

Winter soft wheat

Favourable conditions for sowing and emergence after a difficult start in eastern EU

Weather conditions in the EU have generally been favourable for the sowing of winter wheat. In France, the largest wheat producer of the EU-28, conditions have been predominantly good, allowing for slightly advanced sowing in all main producing areas; the sowing campaign has practically finished now. In Germany and the Benelux countries, sowing activities experienced many rain-induced interruptions in mid-October, but were completed with no problems at the beginning of November. In Ireland and the UK, sowing activities progressed well and were practically completed in October, thanks to the drier-than-usual autumn weather conditions. In Denmark, Finland and Sweden, sowing activities were completed in the first half of October after some delays due to frequent rains in the first half of September. In all of these regions, germination and early crop establishment have benefited well from warm autumn conditions during the last days of October and the first half of November. In Poland and parts of the Baltic countries, where germination was poor and uneven due to continued drought and unusually cold conditions (as reported in the October bulletin), conditions improved substantially and fields were re-sown in the driest areas. Nevertheless, some losses can be expected due to the initially poor conditions and the late (re-)sowing dates. In Hungary and significant parts of Romania, Austria, Slovenia, Croatia, Slovakia, the Czech Republic and Bulgaria, sowing activities could only be completed towards the end of October due to abundant precipitation from September to mid-October. Since then, below-average rainfall and favourable temperatures have led to adequate crop emergence in these regions. In other parts of the EU, sowing activities generally proceeded with no major delays. In Spain, the sowing of winter wheat is still ongoing and progressing well. Even where sowing activities were delayed, no serious problems were encountered as, once sown, emergence and early crop establishment generally progressed well, thanks to above-average temperatures across the EU-28.





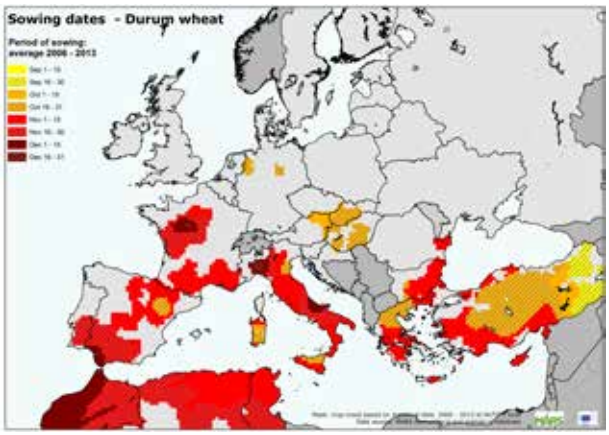
Durum wheat

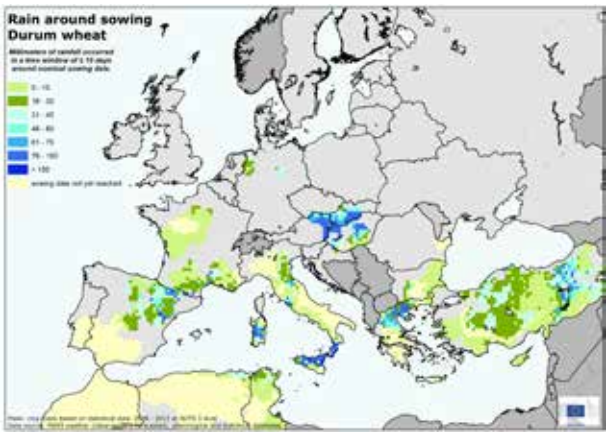
Sowing ongoing under favourable conditions

In Italy, which is the largest durum wheat producer of the EU-28, the first dekad of November provided good sowing conditions in all major production areas. Some significant rainfall events were registered in *Sicilia, Calabria* and *Sardinia* at the end of October, but these caused no delay to the sowing of durum wheat, which is normally sown later than soft wheat. November has so far been characterised by little or no precipitation and warmer-than-usual temperatures, which favours the rapid progress of the sowing operations and prompt crop emergence.

Similar good sowing conditions prevailed in Spain and southern France, where sowing is currently taking place about 1 week earlier than last year.

In Greece, the latest significant rains occurred during the second dekad of October. The following dry period allowed sowing to proceed quickly. Durum wheat emergence and crop establishment have benefited from above-average temperatures so far, but the chilly conditions expected during the coming weeks could negatively affect the later-sown crops.





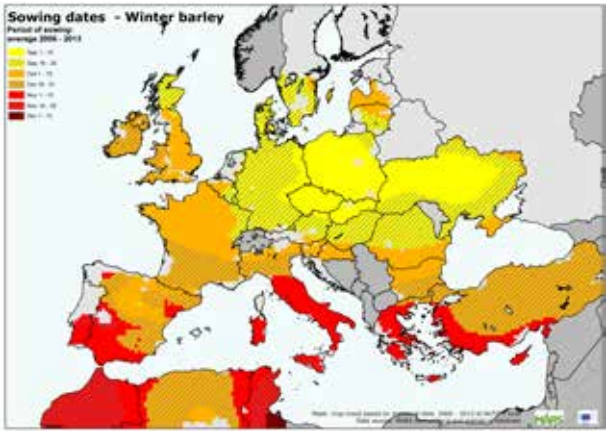
Winter barley

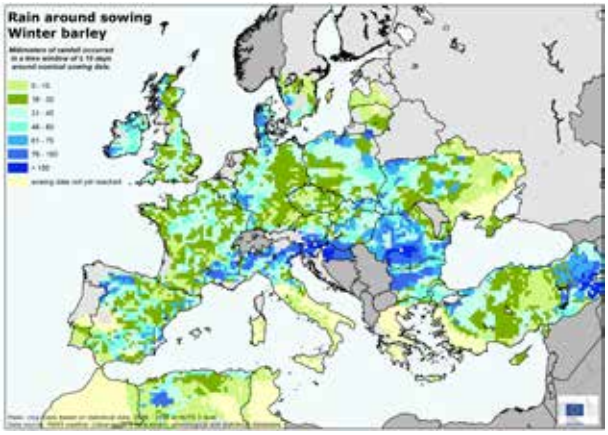
Sowing activities completed in central and northern Europe and making good progress in the Mediterranean region

Weather conditions during September and October have benefited the sowing of winter barley in central Europe. In Germany, the rainfall registered during the first 3 weeks of September was followed by a period of about 20 days with no precipitation, which facilitated the completion of winter barley sowing activities in the first half of October. Sowing activities in France were almost completed by the end of October, 1 week earlier than in 2014, thanks to the dry conditions experienced since mid-September. Emergence was also advanced thanks to the higher-than-usual temperatures during the first weeks of November. Similarly, the substantially drier-than-usual autumn weather conditions in Ireland and the UK facilitated the rapid progression of sowing activities, which were completed in October.

In Denmark, Finland and Sweden, sowing activities were completed by mid-October. After a rather humid period during the first half of September, rainfall scarcity has since favoured the smooth progression of the sowing campaign. In Poland, a period with no rainfall from the last week of September to mid-October facilitated the sowing of winter barley with no major delays. Concerns regarding poor crop establishment due to dry and cold conditions were diminished thanks to improved conditions since the end of October, whereas some areas were re-sown. Abundant precipitation from September to mid-October delayed sowing activities in Hungary and Romania, which could only be completed in the second half of October, 10-15 days later than usual. However, around-average temperatures following the sowing period facilitated adequate crop emergence.

Winter barley is currently being sown in Spain, Italy and Greece. Rainfall since the last week of October has been limited, with only some relevant events on 1 and 2 November 2015. Almost no precipitation has been registered since then, favouring the rapid progression of sowing activities.





Winter rapeseed

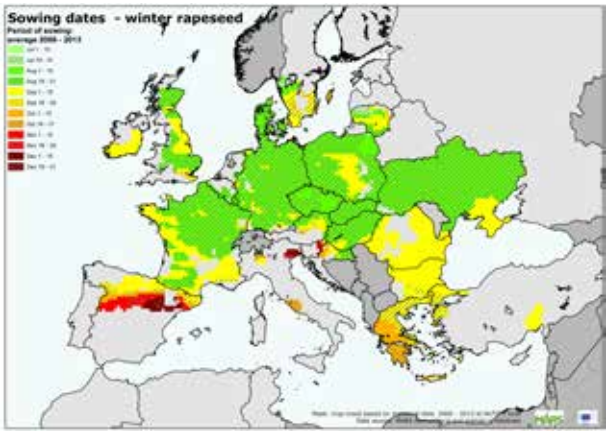
Improvement in Poland; good conditions in the other major producer countries

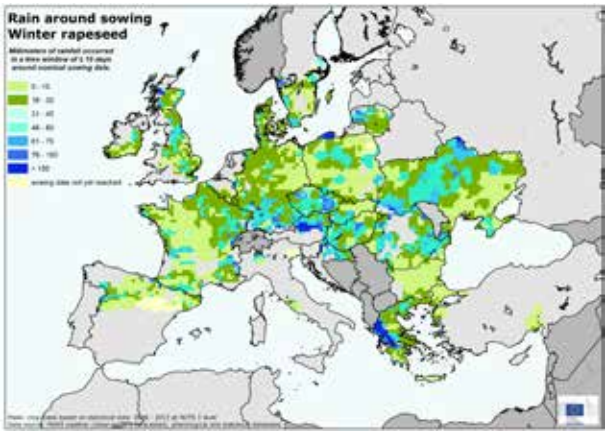
As reported in the previous bulletin, the main EU-28 producers of rapeseed (Germany, France and the UK, but excluding Poland) experienced favourable weather conditions around sowing and emergence. During the typical sowing window (mid-August to mid-September), the warm temperatures and rain-free days were beneficial to sowing, despite above-average precipitation in northern Germany. In smaller rapeseed-producing countries (Czech Republic, Hungary and Romania), despite high rainfall recorded towards the end of and after the sowing period, sowing was completed during the optimal time window and emergence and early crop establishment generally progressed well.

In Poland, sowing and emergence occurred under very complicated conditions. The persistent dry conditions in August delayed sowing activities by several weeks. Farmers were eventually able to sow thanks to some rainfall in northern regions, but it was insufficient to replenish soil water reserves. Consequently, seeds germinated under unfavourable conditions. This made rapeseed plants more vulnerable to the low temperatures experienced in large parts of northern Europe in October, leading to poor crop establishment in Poland. In response, farmers replanted rapeseed in areas most affected by drought. This second wave of planting benefited from the rain and relatively warm temperatures in November, which boosted emergence and generally improved the crop-development situation.

In the countries where rapeseed crops were successfully established after sowing, the cold temperatures during October did not have any significant impact on the crops.

The rapeseed crops benefited from higher-than-usual temperatures during the first weeks of November in the major producing areas of Europe.





2.2 Black Sea area

Ukraine

Poor sprouting conditions in the east

While farmers were able to sow winter crops during the usual sowing period in the eastern half of Ukraine, the prevailing dry and relatively cold conditions were far from optimal for germination. The oblasts of *Mykolaiv, Kherson, Zaporizhia, Dnipropetrovsk, Poltava, Kharkiv* and *Donetsk* received only 30 to 40 % of the average cumulated rainfall between 1 September and 10 November. Moreover, since 7 October, average temperatures were between 0 and 10 °C, with minimum temperatures slightly below 0 °C. After a dry summer, rainfall was slightly below or close to the average, and temperatures were close to or above the average in the western half of the country, creating better sprouting conditions than in the east. Since 10 November, rainfall has been observed in all the oblasts previously cited, which improves the conditions for the late sowing and sprouting of winter crops in the south. Temperatures are also forecast to be above average for the coming dekad, with some rainfall in the easternmost oblasts that could improve conditions. Nevertheless, some losses are likely for winter wheat, winter barley and rapeseed, as the timing of and the conditions during sowing and emergence will determine yield formation.

Turkey

Favourable sowing conditions for winter crops

Since 1 October, temperatures have been consistently above average throughout the country, with the exception of some northern areas (e.g. *Bati Karadeniz*) where below-average temperatures occurred between 25 October and 5 November. Rainfall was mainly concentrated around 20 October. After a short interruption around this period, the harvesting of grain maize progressed well and is now near completion. Reported yields are very good and above last year's record levels. Regarding the sowing conditions of winter cereals, the weather conditions during the sowing period (i.e. October-November) have been favourable. However, the dry conditions that prevailed after 20 October give rise to some concern about sufficient soil moisture for the emergence and the early development of the crops.

2.3 European Russia and Belarus

European Russia

Conditions unfavourable for emergence of winter cereals

In the southern half of Russia, below-average rainfall since late summer persisted until the last dekad of October. Scarce rain allowed for good progress in the sowing of winter wheat, but also led to poor germination due to very dry top soils, resulting in no, very delayed or uneven emergence. Large areas were seriously affected, for example in the Chernozem belt as well as in the *Volgogradskaya* and the *Rostovskaya* oblasts. The warm conditions in September and early October were followed by a 10-15 °C drop in temperatures, which lasted from about 6 October until the end of October, hampering the development of seedlings before the winter dormancy period. The underdeveloped crops will be vulnerable to adverse winter weather conditions.

In late October and early November, somewhat higher temperatures and beneficial rain provided some relief in the main winter-wheat-producing regions. Nevertheless, the unfavourable germination conditions may have a knock-on effect on wheat production next year. Mild winter and spring conditions could improve the situation, as happened in early 2015, but sizable areas will likely have to be replanted with spring cereals next spring.

Belarus

Sowing completed on time and under good conditions

Meteorological conditions were predominantly favourable for the sowing of winter cereals, with above-average temperatures and near-average rainfall since the first dekad of September. Mid-September was exceptionally warm, with maximum temperatures reaching 29 °C in *Brest* and *Gomel*, which was followed by a sudden drop in temperatures during the first dekad of October, with average temperatures slightly above 0 °C and minima below – 5 °C being recorded in the provinces of *Mogilev* and *Vitebsk*. These cold conditions may have negatively affected the establishment of late-sown winter crops in the southern provinces, but no particular problems are expected in the northern provinces, where winter crops were sown from the beginning of September and crop establishment occurred under favourable thermal conditions.

3. Crop yield forecasts

Country	TOTAL WHEAT t/ha					TOTAL BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	5.90	**5.60**	5.44	-5.0	+3.1	4.90	**4.64**	4.49	-5.3	+3.3
AT	5.92	**5.48**	5.26	-7.4	+4.3	5.80	**4.95**	5.03	-14.6	-1.5
BE	9.41	**8.93**	8.75	-5.2	+2.0	9.30	**8.69**	8.65	-6.5	+0.5
BG	4.22	**4.30**	3.94	+1.9	+9.0	4.00	**3.90**	3.72	-2.6	+4.7
CY	-	**-**	-	-	-	2.44	**2.57**	1.97	+5.3	+30.6
CZ	6.51	**5.67**	5.48	-12.9	+3.5	5.61	**4.71**	4.57	-16.0	+3.2
DE	8.63	**7.65**	7.63	-11.3	+0.3	7.35	**6.52**	6.36	-11.3	+2.4
DK	7.78	**7.47**	7.07	-4.1	+5.6	5.87	**5.98**	5.52	+1.8	+8.2
EE	3.99	**3.76**	3.37	-5.8	+11.7	3.64	**3.18**	2.94	-12.8	+8.2
ES	2.99	**2.95**	3.09	-1.5	-4.6	2.49	**2.51**	2.66	+0.9	-5.5
FI	4.06	**3.60**	3.70	-11.3	-2.6	3.73	**3.18**	3.44	-14.6	-7.5
FR	7.36	**7.37**	7.01	+0.2	+5.3	6.65	**6.70**	6.35	+0.7	+5.4
GR	3.08	**2.77**	2.85	-10.0	-2.8	3.05	**2.70**	2.96	-11.5	-8.7
HR	4.14	**5.22**	4.70	+26.2	+11.1	3.82	**4.67**	4.14	+22.3	+12.9
HU	4.71	**4.48**	4.21	-4.9	+6.3	4.45	**4.09**	3.88	-8.0	+5.5
IE	9.96	**9.33**	8.84	-6.3	+5.6	8.05	**8.03**	7.39	-0.2	+8.8
IT	3.81	**3.73**	3.84	-2.2	-2.9	3.64	**3.62**	3.66	-0.4	-0.9
LT	4.56	**4.16**	4.13	-8.8	+0.8	3.80	**3.20**	3.21	-15.9	-0.3
LU	6.13	**6.00**	5.98	-2.2	+0.4	-	**-**	-	-	-
LV	3.75	**4.03**	3.60	+7.5	+11.8	3.56	**2.79**	2.94	-21.6	-5.0
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	9.11	**8.88**	8.80	-2.6	+0.8	6.75	**6.37**	6.19	-5.7	+3.0
PL	4.97	**4.44**	4.32	-10.7	+2.7	4.05	**3.45**	3.54	-14.8	-2.4
PT	2.06	**1.65**	1.50	-19.9	+9.6	2.18	**1.63**	1.57	-25.2	+3.7
RO	3.65	**3.46**	3.23	-5.2	+7.1	3.36	**3.08**	2.91	-8.3	+5.8
SE	6.80	**6.12**	5.95	-10.1	+2.9	4.78	**4.68**	4.45	-2.0	+5.4
SI	5.23	**4.96**	5.02	-5.2	-1.1	4.85	**4.35**	4.48	-10.2	-2.8
SK	5.46	**4.31**	4.32	-21.2	-0.3	4.87	**3.52**	3.66	-27.7	-3.9
UK	8.58	**8.09**	7.63	-5.7	+6.0	6.40	**6.04**	5.83	-5.7	+3.6

Country	SOFT WHEAT t/ha					DURUM WHEAT t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	6.14	**5.84**	5.67	-4.9	+3.1	3.35	**3.20**	3.26	-4.5	-1.8
AT	5.98	**5.55**	5.30	-7.1	+4.8	4.78	**4.48**	4.50	-6.2	-0.5
BE	9.41	**8.93**	8.75	-5.2	+2.0	-	**-**	-	-	-
BG	4.22	**4.30**	3.94	+1.9	+9.0	-	**-**	-	-	-
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	6.51	**5.67**	5.48	-12.9	+3.5	-	**-**	-	-	-
DE	8.64	**7.67**	7.64	-11.2	+0.3	6.51	**5.44**	5.39	-16.5	+0.9
DK	7.78	**7.47**	7.07	-4.1	+5.6	-	**-**	-	-	-
EE	3.99	**3.76**	3.37	-5.8	+11.7	-	**-**	-	-	-
ES	3.04	**3.06**	3.31	+0.4	-7.5	2.67	**2.31**	2.09	-13.6	+10.6
FI	4.06	**3.60**	3.70	-11.3	-2.6	-	**-**	-	-	-
FR	7.48	**7.51**	7.15	+0.4	+4.9	5.20	**5.25**	5.14	+1.1	+2.1
GR	3.31	**2.91**	3.04	-12.3	-4.3	2.96	**2.70**	2.78	-8.8	-2.8
HR	4.14	**5.22**	4.70	+26.2	+11.1	-	**-**	-	-	-
HU	4.71	**4.48**	4.21	-4.9	+6.3	4.55	**4.32**	4.03	-5.0	+7.2
IE	9.96	**9.33**	8.84	-6.3	+5.6	-	**-**	-	-	-
IT	5.29	**5.48**	5.38	+3.5	+1.8	3.13	**2.98**	3.13	-4.9	-4.7
LT	4.56	**4.16**	4.13	-8.8	+0.8	-	**-**	-	-	-
LU	6.13	**6.00**	5.98	-2.2	+0.4	-	**-**	-	-	-
LV	3.75	**4.03**	3.60	+7.5	+11.8	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	9.11	**8.88**	8.80	-2.6	+0.8	-	**-**	-	-	-
PL	4.97	**4.44**	4.32	-10.7	+2.7	-	**-**	-	-	-
PT	2.06	**1.65**	1.50	-19.9	+9.6	-	**-**	-	-	-
RO	3.65	**3.46**	3.23	-5.2	+7.1	-	**-**	-	-	-
SE	6.80	**6.12**	5.95	-10.1	+2.9	-	**-**	-	-	-
SI	5.23	**4.96**	5.02	-5.2	-1.1	-	**-**	-	-	-
SK	5.47	**4.37**	4.34	-20.1	+0.6	5.32	**3.31**	3.77	-37.8	-12.1
UK	8.58	**8.09**	7.63	-5.7	+6.0	-	**-**	-	-	-

Country	SPRING BARLEY t/ha					WINTER BARLEY t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	4.16	**3.91**	3.91	-5.8	+0.1	5.92	**5.60**	5.36	-5.4	+4.5
AT	4.68	**3.69**	4.13	-21.1	-10.7	6.67	**5.88**	5.87	-11.9	+0.2
BE	-	**-**	-	-	-	9.30	**8.69**	8.65	-6.5	+0.5
BG	-	**-**	-	-	-	4.00	**3.90**	3.72	-2.6	+4.7
CY	-	**-**	-	-	-	2.44	**2.57**	1.97	+5.3	+30.6
CZ	5.56	**4.69**	4.52	-15.7	+3.6	5.74	**4.79**	4.69	-16.6	+2.1
DE	5.98	**5.33**	5.38	-10.9	-1.0	7.73	**6.87**	6.71	-11.2	+2.3
DK	5.68	**5.89**	5.41	+3.6	+8.9	6.63	**6.36**	6.01	-4.0	+5.9
EE	3.64	**3.18**	2.94	-12.8	+8.2	-	**-**	-	-	-
ES	2.58	**2.56**	2.70	-0.5	-4.9	1.91	**2.19**	2.44	+14.7	-10.0
FI	3.73	**3.18**	3.44	-14.6	-7.5	-	**-**	-	-	-
FR	6.11	**6.17**	6.04	+0.9	+2.1	6.88	**6.88**	6.50	-0.0	+5.8
GR	-	**-**	-	-	-	3.05	**2.70**	2.96	-11.5	-8.7
HR	-	**-**	-	-	-	3.82	**4.67**	4.14	+22.3	+12.9
HU	3.89	**3.47**	3.36	-10.8	+3.1	4.67	**4.31**	4.15	-7.9	+3.8
IE	7.56	**7.43**	6.99	-1.7	+6.3	9.32	**9.18**	8.85	-1.5	+3.7
IT	-	**-**	-	-	-	3.64	**3.62**	3.66	-0.4	-0.9
LT	3.80	**3.20**	3.21	-15.9	-0.3	-	**-**	-	-	-
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	3.56	**2.79**	2.94	-21.6	-5.0	-	**-**	-	-	-
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	6.75	**6.37**	6.19	-5.7	+3.0	-	**-**	-	-	-
PL	3.82	**3.23**	3.39	-15.4	-4.7	4.68	**4.15**	4.07	-11.3	+2.0
PT	-	**-**	-	-	-	2.18	**1.63**	1.57	-25.2	+3.7
RO	2.44	**2.33**	2.09	-4.8	+11.0	3.69	**3.40**	3.28	-8.0	+3.5
SE	4.71	**4.60**	4.40	-2.5	+4.4	6.41	**6.44**	5.46	+0.4	+17.8
SI	-	**-**	-	-	-	4.85	**4.35**	4.48	-10.2	-2.8
SK	4.78	**3.34**	3.61	-30.1	-7.4	5.24	**4.10**	3.99	-21.7	+2.7
UK	5.86	**5.64**	5.37	-3.8	+5.0	7.22	**6.61**	6.57	-8.4	+0.6

Country	GRAIN MAIZE t/ha					RYE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	8.16	**6.46**	7.04	-20.9	-8.2	4.23	**3.72**	3.58	-12.1	+3.8
AT	10.79	**9.76**	10.16	-9.6	-4.0	4.87	**4.25**	4.25	-12.6	-0.0
BE	10.50	**11.15**	10.98	+6.1	+1.5	-	**-**	-	-	-
BG	7.68	**4.94**	5.77	-35.8	-14.4	-	**-**	-	-	-
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	8.43	**6.18**	7.74	-26.7	-20.2	4.99	**4.46**	4.61	-10.7	-3.3
DE	10.69	**9.44**	10.00	-11.7	-5.6	6.12	**5.38**	5.31	-12.1	+1.4
DK	-	**-**	-	-	-	6.36	**5.92**	5.83	-6.9	+1.5
EE	-	**-**	-	-	-	3.22	**2.94**	2.67	-8.6	+10.3
ES	11.24	**11.08**	10.90	-1.4	+1.7	1.72	**1.87**	2.05	+8.7	-8.8
FI	-	**-**	-	-	-	3.17	**2.87**	2.87	-9.7	-0.2
FR	10.63	**8.90**	9.30	-16.3	-4.4	4.90	**4.97**	4.91	+1.4	+1.2
GR	11.96	**11.81**	11.53	-1.3	+2.4	2.11	**1.85**	2.11	-12.2	-12.2
HR	8.11	**5.29**	6.06	-34.7	-12.7	-	**-**	-	-	-
HU	7.74	**5.25**	5.92	-32.1	-11.3	2.91	**2.80**	2.52	-3.9	+11.1
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	10.62	**9.35**	9.21	-12.0	+1.5	-	**-**	-	-	-
LT	6.05	**5.95**	6.69	-1.6	-11.0	2.25	**2.23**	2.17	-1.1	+2.4
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	3.57	**3.18**	2.90	-10.9	+9.7
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	13.06	**11.94**	11.35	-8.5	+5.2	-	**-**	-	-	-
PL	6.59	**5.42**	6.47	-17.8	-16.3	3.15	**2.83**	2.71	-10.3	+4.2
PT	8.44	**8.51**	8.05	+0.9	+5.7	0.94	**0.98**	0.87	+4.2	+12.5
RO	4.72	**3.06**	3.75	-35.2	-18.4	-	**-**	-	-	-
SE	-	**-**	-	-	-	6.51	**6.39**	5.75	-1.8	+11.1
SI	9.16	**8.00**	7.78	-12.7	+2.7	-	**-**	-	-	-
SK	8.39	**5.62**	6.47	-33.0	-13.0	3.66	**3.39**	3.29	-7.4	+3.3
UK	-	**-**	-	-	-	-	**-**	-	-	-

Country	TRITICALE t/ha					RAPE AND TURNIP RAPE t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	4.53	**4.10**	4.15	-9.5	-1.4	3.59	**3.25**	3.13	-9.5	+4.0
AT	5.90	**5.29**	5.16	-10.3	+2.5	3.75	**3.30**	3.26	-11.9	+1.5
BE	-	**-**	-	-	-	4.80	**4.52**	4.33	-5.8	+4.5
BG	3.18	**3.00**	2.87	-5.6	+4.3	2.78	**2.60**	2.47	-6.4	+5.4
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	5.03	**4.47**	4.51	-11.2	-0.9	3.95	**3.44**	3.19	-13.0	+7.7
DE	7.11	**6.29**	6.12	-11.5	+2.8	4.48	**3.77**	3.80	-15.8	-0.7
DK	6.19	**5.72**	5.27	-7.5	+8.5	4.27	**3.83**	3.76	-10.3	+1.9
EE	-	**-**	-	-	-	2.08	**1.94**	1.76	-7.0	+9.9
ES	2.33	**2.17**	2.28	-6.8	-4.9	2.44	**2.30**	2.22	-5.9	+3.5
FI	-	**-**	-	-	-	1.48	**1.29**	1.38	-12.6	-6.0
FR	5.21	**5.04**	5.30	-3.3	-5.0	3.70	**3.43**	3.38	-7.2	+1.5
GR	-	**-**	-	-	-	-	**-**	-	-	-
HR	3.63	**3.65**	3.76	+0.7	-2.8	3.10	**2.94**	2.68	-5.1	+9.9
HU	3.96	**3.90**	3.56	-1.5	+9.6	3.19	**2.57**	2.52	-19.6	+1.7
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	-	**-**	-	-	-	2.40	**2.40**	2.36	+0.0	+1.8
LT	3.29	**3.12**	3.03	-5.2	+2.9	2.00	**2.18**	2.03	+9.2	+7.5
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	2.00	**2.35**	2.11	+17.5	+11.1
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	-	**-**	-	-	-	-	**-**	-	-	-
PL	4.02	**3.47**	3.53	-13.5	-1.6	3.39	**3.08**	2.77	-9.1	+11.4
PT	1.48	**1.51**	1.25	+1.8	+20.7	-	**-**	-	-	-
RO	3.68	**3.45**	3.36	-6.1	+2.8	2.55	**2.21**	2.13	-13.4	+3.7
SE	5.92	**5.67**	5.14	-4.2	+10.4	3.38	**3.16**	2.82	-6.5	+12.1
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	3.57	**3.28**	3.24	-8.2	+1.1	3.34	**2.64**	2.48	-21.0	+6.3
UK	4.45	**4.09**	3.98	-8.3	+2.6	3.64	**3.73**	3.48	+2.4	+7.3

Country	SUGAR BEETS t/ha					POTATO t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	76.97	**70.59**	70.44	-8.3	+0.2	34.71	**31.57**	31.39	-9.0	+0.6
AT	83.87	**68.19**	71.96	-18.7	-5.2	35.10	**32.04**	32.15	-8.7	-0.3
BE	81.75	**77.85**	76.05	-4.8	+2.4	54.00	**43.61**	46.89	-19.2	-7.0
BG	-	**-**	-	-	-	13.01	**13.84**	14.23	+6.4	-2.7
CY	-	**-**	-	-	-	-	**-**	-	-	-
CZ	70.28	**63.61**	62.19	-9.5	+2.3	29.07	**24.32**	27.25	-16.3	-10.7
DE	79.86	**69.58**	70.36	-12.9	-1.1	47.42	**43.02**	43.48	-9.3	-1.1
DK	59.70	**61.59**	62.65	+3.2	-1.7	43.12	**41.16**	39.54	-4.5	+4.1
EE	-	**-**	-	-	-	-	**-**	-	-	-
ES	92.21	**93.25**	85.06	+1.1	+9.6	31.89	**30.89**	30.14	-3.1	+2.5
FI	38.21	**36.15**	36.25	-5.4	-0.3	27.93	**25.70**	25.80	-8.0	-0.4
FR	93.26	**87.99**	88.11	-5.7	-0.1	47.94	**42.38**	44.03	-11.6	-3.8
GR	-	**-**	-	-	-	23.82	**25.92**	25.47	+8.8	+1.8
HR	63.60	**43.64**	51.02	-31.4	-14.5	17.00	**16.68**	16.66	-1.9	+0.1
HU	66.37	**53.90**	53.47	-18.8	+0.8	26.27	**22.84**	23.82	-13.1	-4.1
IE	-	**-**	-	-	-	-	**-**	-	-	-
IT	57.01	**57.97**	56.76	+1.7	+2.1	26.20	**25.65**	25.06	-2.1	+2.3
LT	53.00	**50.25**	50.90	-5.2	-1.3	18.00	**14.92**	16.07	-17.1	-7.1
LU	-	**-**	-	-	-	-	**-**	-	-	-
LV	-	**-**	-	-	-	18.00	**18.89**	17.45	+4.9	+8.2
MT	-	**-**	-	-	-	-	**-**	-	-	-
NL	87.40	**80.92**	79.19	-7.4	+2.2	45.00	**44.03**	43.88	-2.2	+0.3
PL	54.80	**49.80**	52.18	-9.1	-4.6	23.60	**20.90**	21.40	-11.4	-2.3
PT	-	**-**	-	-	-	19.84	**19.05**	17.14	-4.0	+11.1
RO	40.99	**29.73**	34.64	-27.5	-14.2	16.73	**13.00**	14.60	-22.3	-11.0
SE	59.77	**61.35**	58.91	+2.7	+4.2	32.51	**33.48**	32.08	+3.0	+4.4
SI	-	**-**	-	-	-	-	**-**	-	-	-
SK	61.04	**49.29**	54.33	-19.3	-9.3	-	**-**	-	-	-
UK	80.26	**71.72**	69.25	-10.6	+3.6	42.29	**41.43**	40.63	-2.0	+2.0

Country	SUNFLOWER t/ha				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
EU-28	2.13	**1.78**	1.90	-16.5	-6.5
AT	2.81	**2.62**	2.58	-6.7	+1.7
BE	-	**-**	-	-	-
BG	2.38	**1.94**	2.12	-18.5	-8.4
CY	-	**-**	-	-	-
CZ	2.27	**2.23**	2.36	-1.7	-5.5
DE	2.30	**2.01**	2.12	-12.8	-5.6
DK	-	**-**	-	-	-
EE	-	**-**	-	-	-
ES	1.18	**1.03**	1.13	-12.8	-8.7
FI	-	**-**	-	-	-
FR	2.40	**2.28**	2.32	-5.2	-2.1
GR	-	**-**	-	-	-
HR	2.40	**2.65**	2.41	+10.2	+9.6
HU	2.63	**2.41**	2.32	-8.6	+3.9
IE	-	**-**	-	-	-
IT	2.20	**2.18**	2.22	-0.9	-1.9
LT	-	**-**	-	-	-
LU	-	**-**	-	-	-
LV	-	**-**	-	-	-
MT	-	**-**	-	-	-
NL	-	**-**	-	-	-
PL	-	**-**	-	-	-
PT	1.06	**0.58**	0.66	-44.7	-10.8
RO	2.13	**1.42**	1.71	-33.1	-16.9
SE	-	**-**	-	-	-
SI	-	**-**	-	-	-
SK	2.66	**2.28**	2.29	-14.2	-0.3
UK	-	**-**	-	-	-

NB: Yields are forecast for crops with more than 10 000 ha per country.
Sources: 2009-2015 data come from DG AGRICULTURE short-term Outlook data (dated September 2015. received on 12.10.2015).
Eurostat Eurobase (last update: 6.10.2015) and EES (last update: 18.8.2015).
2015 yields come from Mars Crop Yield Forecasting System (output up to 20.10.2015).

Country	WHEAT (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	4.00	**3.49**	3.39	-12.7	+3.1
DZ	1.48	**1.72**	1.59	+15.9	+7.6
MA	1.71	**2.04**	1.65	+19.5	+23.8
TN	2.09	**2.14**	1.91	+2.3	+12.0
TR	2.40	**2.72**	2.59	+13.4	+5.0
UA	4.01	**3.68**	3.27	-8.4	+12.5

Country	BARLEY (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	3.60	**3.34**	3.15	-7.3	+5.9
DZ	1.18	**1.65**	1.39	+39.9	+18.4
MA	0.97	**1.24**	1.10	+27.7	+12.6
TN	1.41	**1.51**	1.19	+6.7	+26.8
TR	2.31	**2.73**	2.56	+18.0	+6.6
UA	3.01	**2.93**	2.36	-2.8	+24.1

Country	GRAIN MAIZE (t/ha)				
	2014	2015	Avg 5yrs	%15/14	%15/5yrs
BY	5.43	**5.23**	5.57	-3.6	-6.1
DZ	-	**-**	-	-	-
MA	-	**-**	-	-	-
TN	-	**-**	-	-	-
TR	9.07	**9.35**	7.98	+3.1	+17.1
UA	6.07	**5.59**	5.61	-8.0	-0.3

NB: Yields are forecast for crops with more than 10 000 ha per country.
Sources: 2010-2014 data come from FAO. Turkish Statistical Office. PSD-online. INRA Maroc. MinAGRI Tunisia and DSASI Algeria
*2014 yields come from Mars Crop Yield Forecasting System as reported values were not available.
2015 yields come from Mars Crop Yield Forecasting System (output up to 20.10.2015).


Soft wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Durum wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Total wheat - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Spring barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Winter barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Total barley - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Grain maize - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Rye - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)


Sugar beets - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)

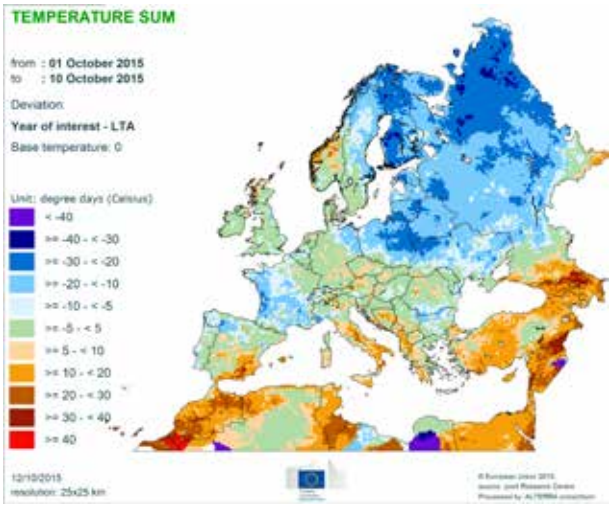

Potato - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)

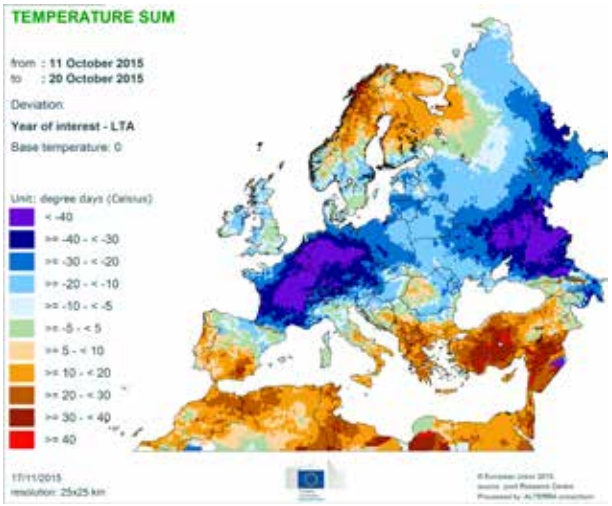

Rape and turnip - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)

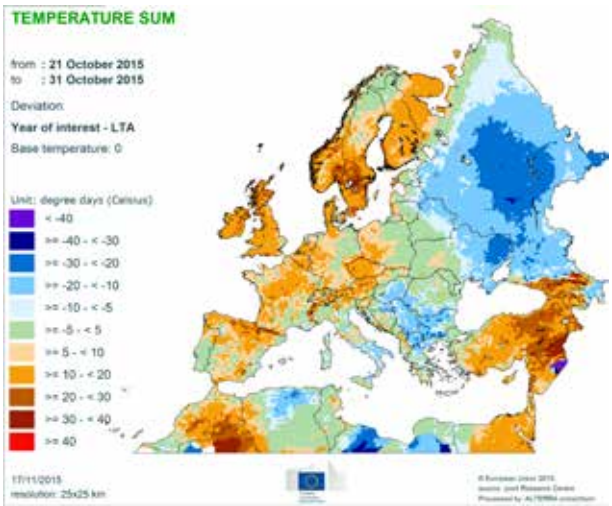

Sunflower - yield forecast 2015
Actual yield versus average yield 2010 - 2014
lower yield (<-4 %)
comparable to average
better yield (>4 %)

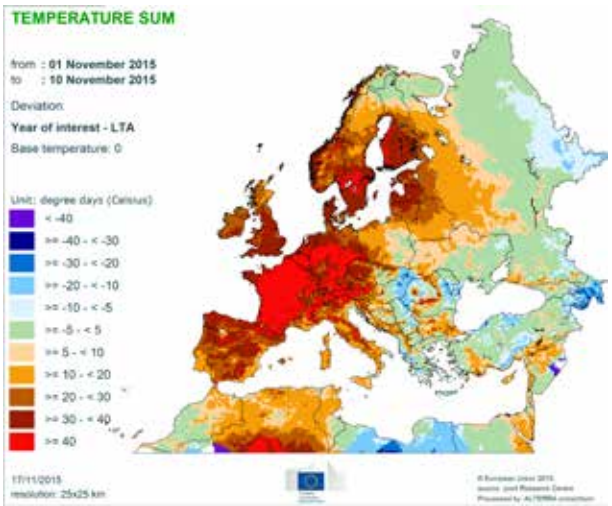
4. Atlas

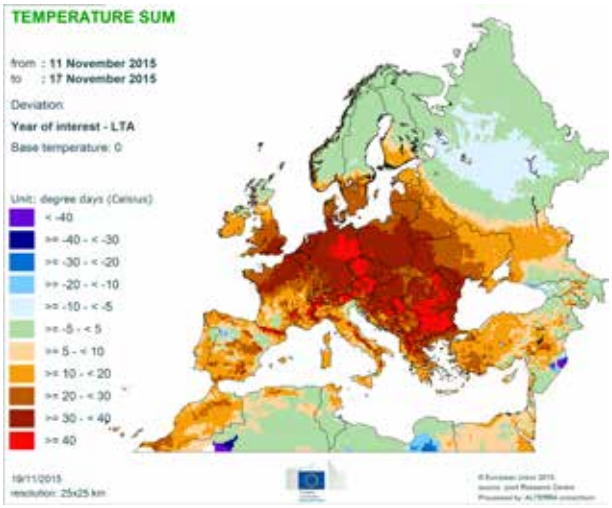
Temperature regime

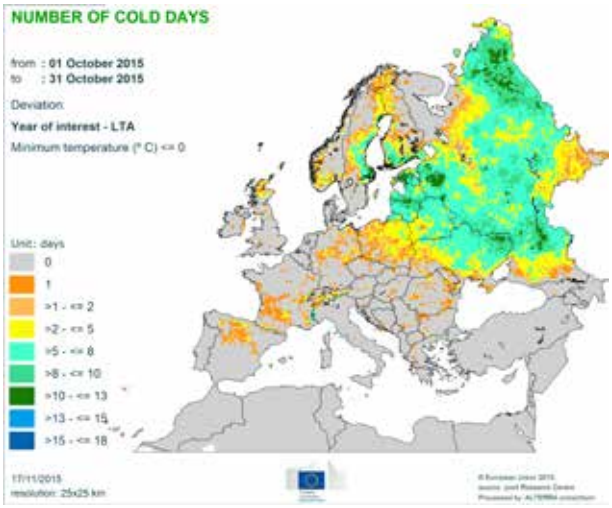


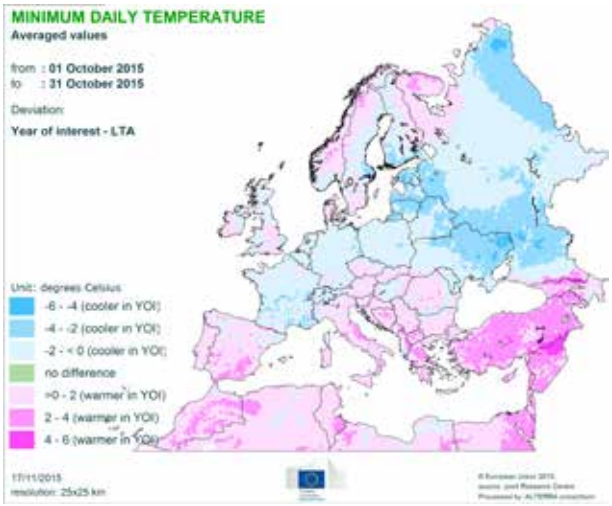


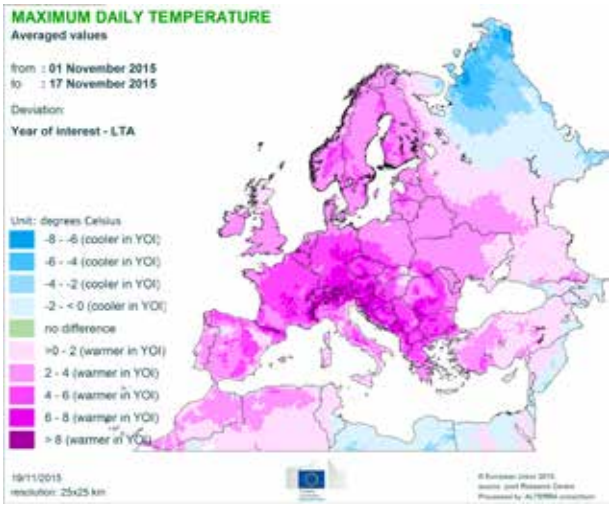




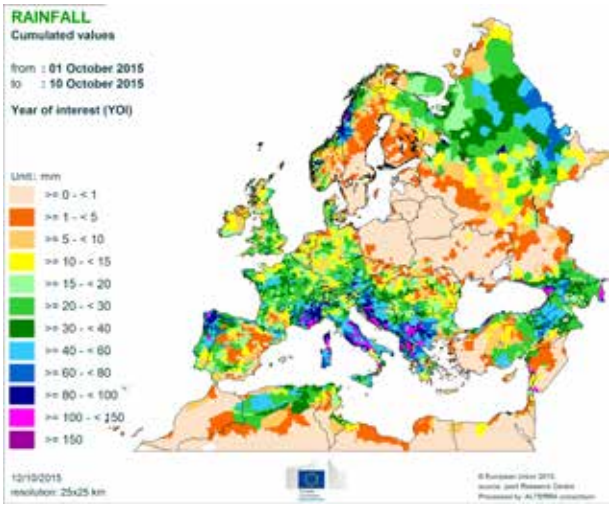

TEMPERATURE SUM
from : 11 November 2015
to : 17 November 2015
Deviation:
Year of interest - LTA
Base temperature: 0
Unit: degree days (Celsius)
< -40
>= -40 - < -30
>= -30 - < -20
>= -20 - < -10
>= -10 - < -5
>= -5 - < 5
>= 5 - < 10
>= 10 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40
18/11/2015
resolution: 25x25 km

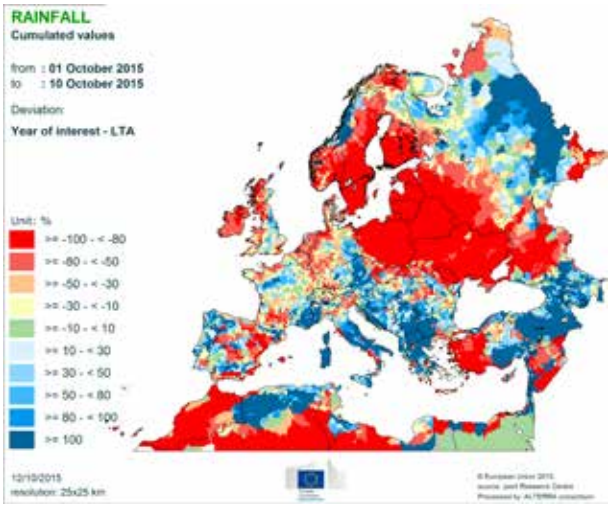

NUMBER OF COLD DAYS
from : 01 October 2015
to : 31 October 2015
Deviation:
Year of interest - LTA
Minimum temperature (° C) <= 0
Unit: days
0
1
>1 - <= 2
>2 - <= 5
>5 - <= 8
>8 - <= 10
>10 - <= 13
>13 - <= 15
>15 - <= 18
17/11/2015
resolution: 25x25 km

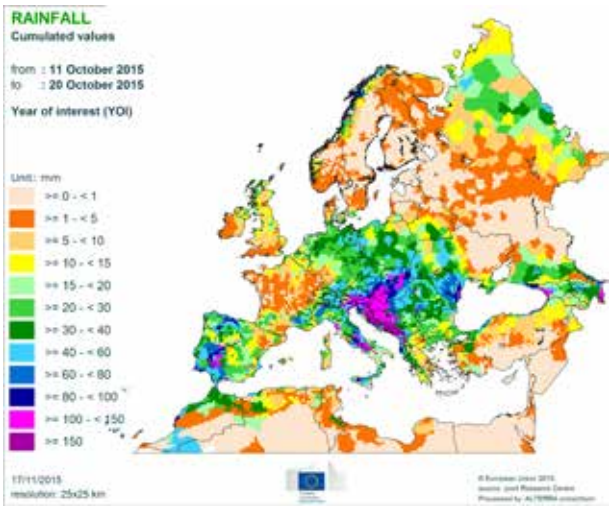

MINIMUM DAILY TEMPERATURE
Averaged values
from : 01 October 2015
to : 31 October 2015
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
-2 - < 0 (cooler in YOI)
no difference
>0 - 2 (warmer in YOI)
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
17/11/2015
resolution: 25x25 km

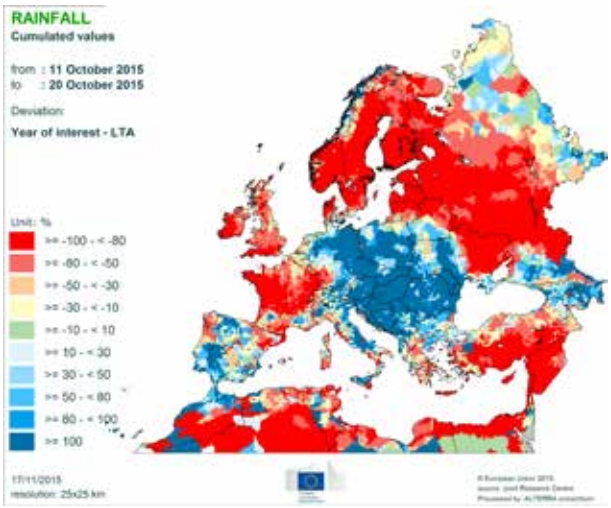

MAXIMUM DAILY TEMPERATURE
Averaged values
from : 01 November 2015
to : 17 November 2015
Deviation:
Year of interest - LTA
Unit: degrees Celsius
-8 - -6 (cooler in YOI)
-6 - -4 (cooler in YOI)
-4 - -2 (cooler in YOI)
-2 - < 0 (cooler in YOI)
no difference
>0 - 2 (warmer in YOI)
2 - 4 (warmer in YOI)
4 - 6 (warmer in YOI)
6 - 8 (warmer in YOI)
> 8 (warmer in YOI)
18/11/2015
resolution: 25x25 km

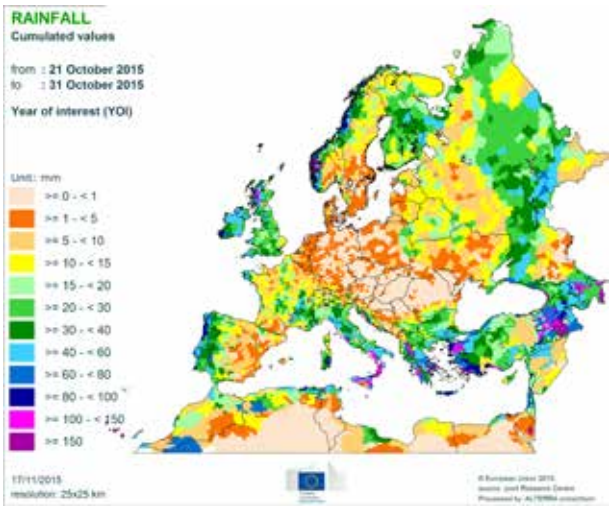
Precipitation

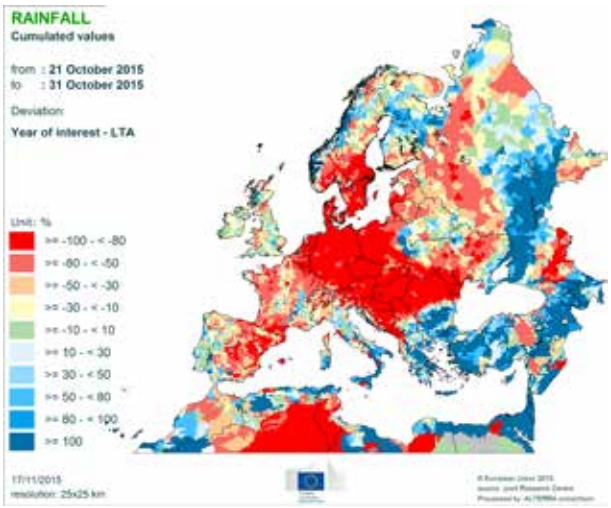


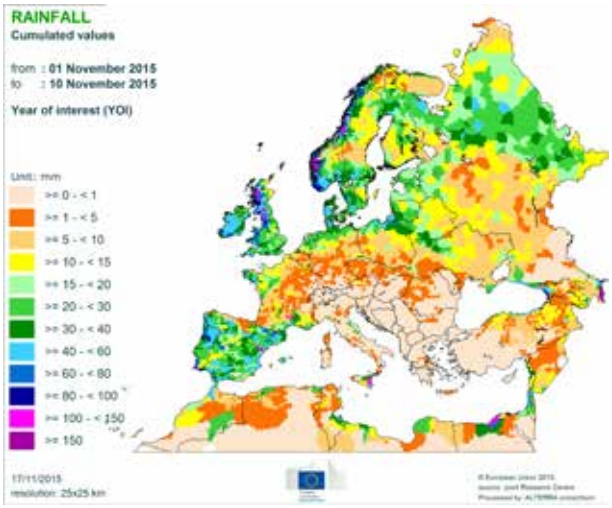


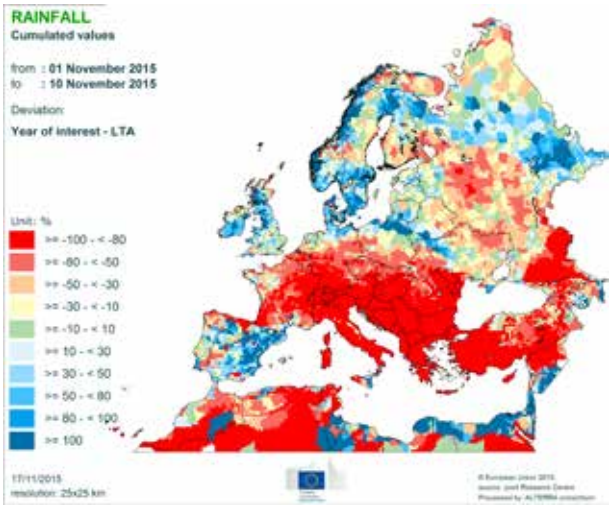


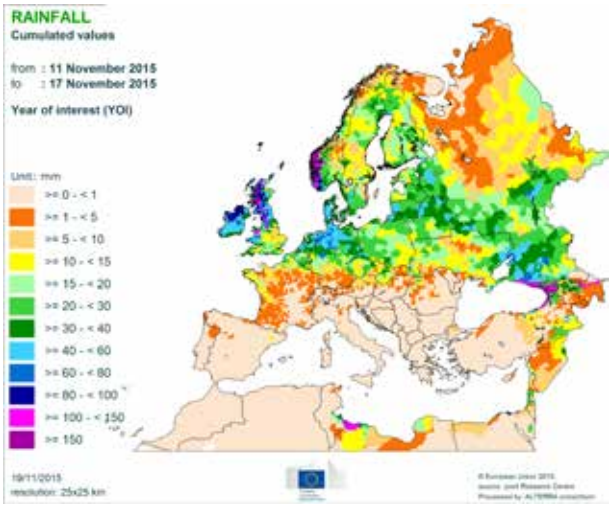


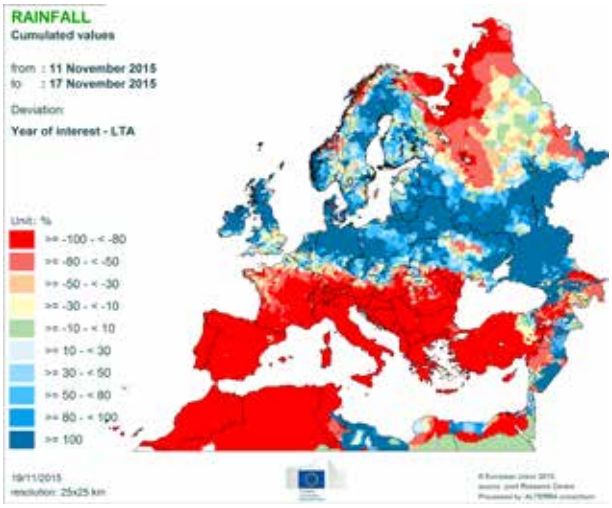


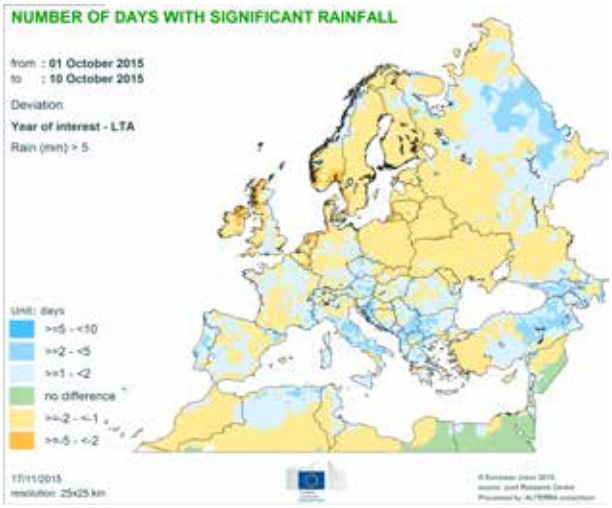


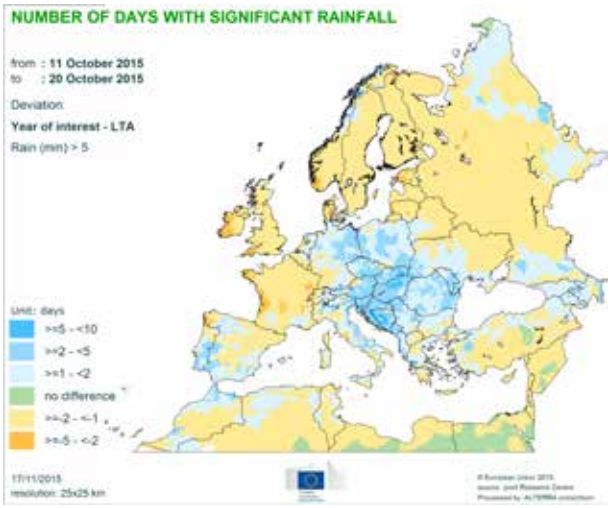

RAINFALL
Cumulated values
from : 01 November 2015
to : 10 November 2015
Year of interest (YOI)
Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150
17/11/2015
resolution: 25x25 km

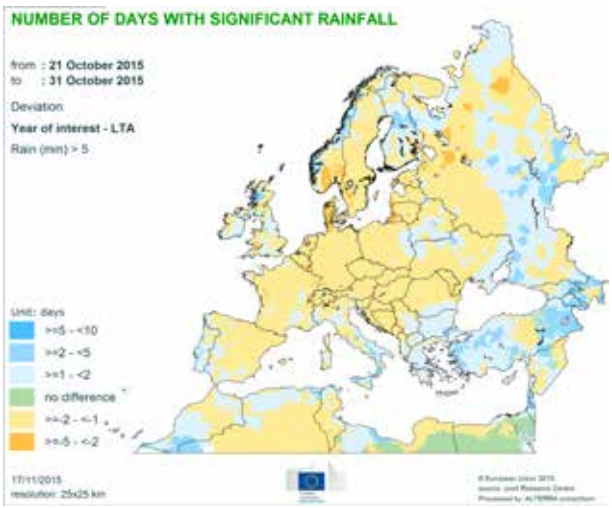

RAINFALL
Cumulated values
from : 01 November 2015
to : 10 November 2015
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
17/11/2015
resolution: 25x25 km

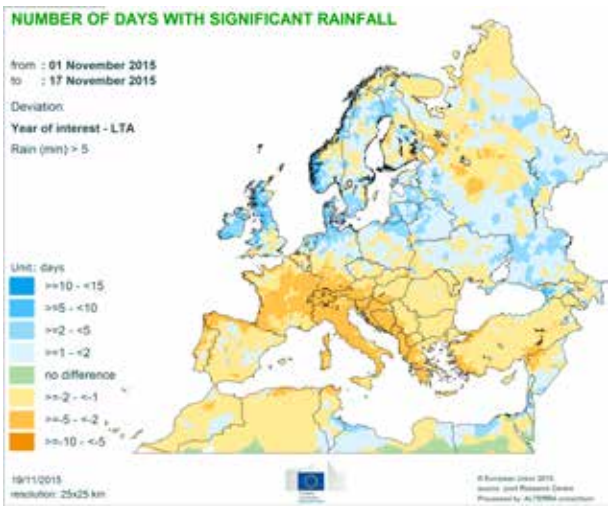

RAINFALL
Cumulated values
from : 11 November 2015
to : 17 November 2015
Year of interest (YOI)
Unit: mm
>= 0 - < 1
>= 1 - < 5
>= 5 - < 10
>= 10 - < 15
>= 15 - < 20
>= 20 - < 30
>= 30 - < 40
>= 40 - < 60
>= 60 - < 80
>= 80 - < 100
>= 100 - < 150
>= 150
18/11/2015
resolution: 25x25 km


RAINFALL
Cumulated values
from : 11 November 2015
to : 17 November 2015
Deviation:
Year of interest - LTA
Unit: %
>= -100 - < -80
>= -80 - < -50
>= -50 - < -30
>= -30 - < -10
>= -10 - < 10
>= 10 - < 30
>= 30 - < 50
>= 50 - < 80
>= 80 - < 100
>= 100
18/11/2015
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 October 2015
to : 10 October 2015
Deviation
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
17/11/2015
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 11 October 2015
to : 20 October 2015
Deviation
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
17/11/2015
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 21 October 2015
to : 31 October 2015
Deviation
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
17/11/2015
resolution: 25x25 km


NUMBER OF DAYS WITH SIGNIFICANT RAINFALL
from : 01 November 2015
to : 17 November 2015
Deviation
Year of interest - LTA
Rain (mm) > 5
Unit: days
>=10 - <15
>=5 - <10
>=2 - <5
>=1 - <2
no difference
>=-2 - <-1
>=-5 - <-2
>=-10 - <-5
19/11/2015
resolution: 25x25 km

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MARS Bulletins 2015

Date	Publication	Reference
26 Jan	Agromet analysis	Vol. 23 No 1
23 Feb	Agromet analysis	Vol. 23 No 2
23 Mar	Agromet analysis and yield forecast	Vol. 23 No 3
27 Apr	Agromet analysis, remote sensing and yield forecast	Vol. 23 No 4
26 May	Agromet analysis, remote sensing, yield forecast and pasture analysis	Vol. 23 No 5
22 Jun	Agromet analysis, remote sensing, yield forecast, pasture update and rice analysis	Vol. 23 No 6
27 Jul	Agromet analysis, remote sensing and yield forecast	Vol. 23 No 7
24 Aug	Agromet analysis, remote sensing and yield forecast	Vol. 23 No 8
21 Sep	Agromet analysis, remote sensing, yield forecast and pasture update	Vol. 23 No 9
26 Oct	Agromet analysis, remote sensing, yield forecast and rice analysis	Vol. 23 No 10
23 Nov	Agromet analysis, yield forecast and sowing conditions	Vol. 23 No 11
14 Dec	Agromet analysis	Vol. 23 No 12

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*MARS stands for Monitoring Agricultural Resources

Technical note:
The long-term average used within this bulletin as a reference is based on an archive of data covering 1975-2014.

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